GRUMMAN

plane news

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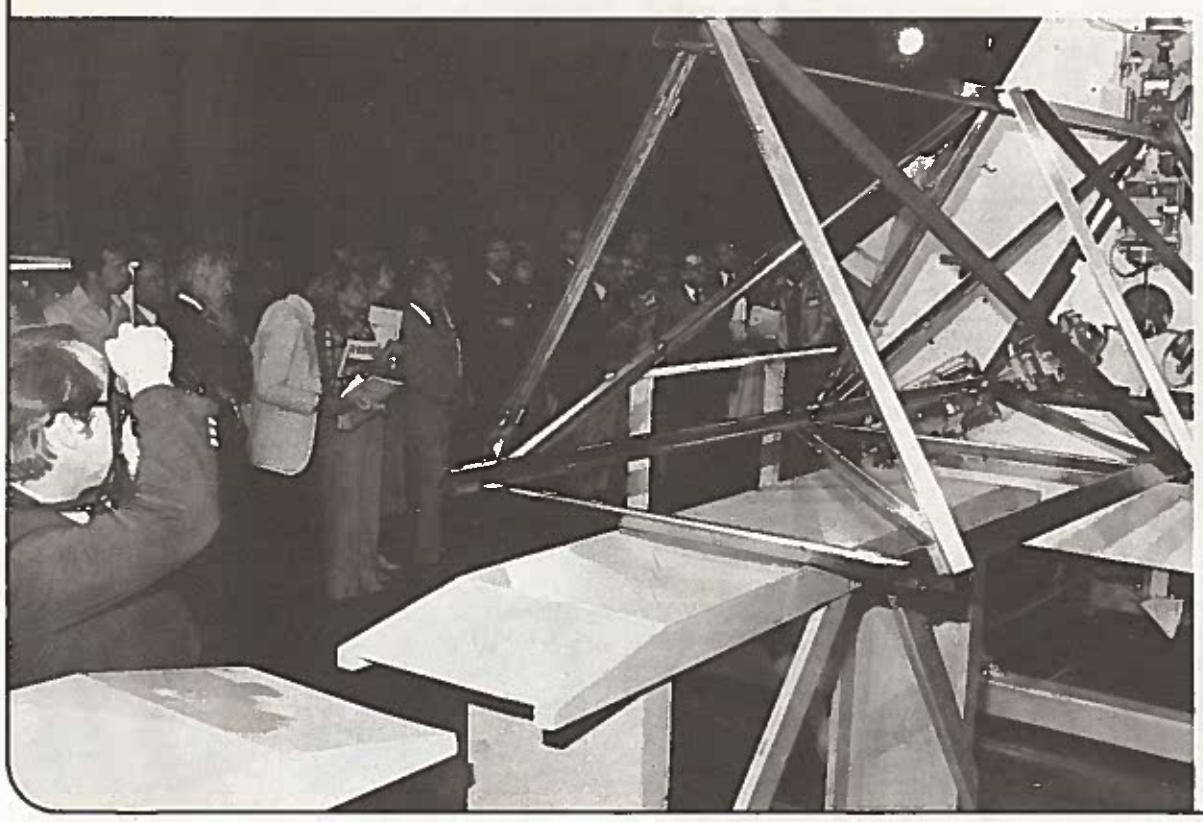

Unveil future space construction tool - pg. 2

Demonstrate beam builder

It whizzed, it clicked, it cranked. . .and as Grumman officials, National Aeronautics and Space Administration (NASA) representatives, and over 30 members of the press watched, the automated fabrication module — the beam builder — turned out a 40-foot long aluminum beam. It was the debut performance for the beam builder, a space manufacturing machine designed and built by Grumman for the NASA Marshall Space Flight Center. The demonstration took place in Plant 12 on June 13.

Guests were invited to a pre-demonstration briefing in Plant 25, where they were addressed by James Kingsbury, director of Science and Engineering at Marshall; and by Grumman Aerospace Chairman and President George Skurla; Don Imgram, director of Space Programs; and Dr. Roger Johnson, director of NASA/Advanced Space Systems.

Kingsbury said that a development with the future ramifications that the beam builder holds could be considered as ". . .yet another giant step for mankind. We're proud to be part of the government-industry team that produced it." Skurla added that the beam builder brings us "a little bit closer to industrialization in space. . . with consequent great benefits for earth."

In his remarks, Dr. Johnson explained the operation and capabilities of the beam builder, which can be carried into space in the cargo bay of the Space Shuttle Orbiter. In low-earth orbit (about 200 miles up), the Shuttle bay doors will open and the beam builder will produce beams of varying lengths. From these beams, large space structures can be assembled. . .structures that are too large to be built on earth and transported into space.

Don Imgram discussed what some of those structures might be. "Solar energy stations, communications satellites, and industrial stations are just a few of the possibilities. We are limited only by our imaginations. The beams you see here may well become as essential to builders in space tomorrow as the two-by-four is to carpenters on earth today."

After the briefing, guests were taken by bus from Plant 25 to Plant 12 to watch the beam builder at work. The demonstration was conducted by Walter Muench, Space Fabrication Demonstration Study program manager.

At the rate of about two-and-a-half feet per minute, the machine produced three sections of beam. "Each section weighs only five pounds," Muench explained, "yet is capable of carrying a compressive load of 1,507 pounds. We're also working on the use of beams made of composite materials, which are even lighter and stronger."

NASA awarded Grumman the contract for the design, analysis, and manufacture of the beam builder in February, 1977. It is scheduled for delivery by September 15 of this year.

Meet the press. *Don Imgram, Grumman's director of Space Programs, explains details of beam builder to press in Plant 25. (Photos by Bob Settles)*

Greetings. *Grumman Aerospace Chairman and President George Skurla welcomes visitors to beam builder press conference.*

Guest speaker. *James Kingsbury, NASA's director of Science and Engineering at Marshall Space Flight Center, discusses future construction in space.*

Investment Plan news

The Aetna Life Insurance Company, managers of the new Guaranteed Income Fund of the Grumman Employee Investment Plan, recently announced that it has revised its interest rates.

The guaranteed interest rate for 1978 has been increased from 8.75 to 9.05 percent; the minimum interest rate for the years 1979 through 1982 has been increased from 8.2 to 8.5 percent.

According to Aetna, "The most recent review of our investment results allows us to make these changes."

This information reached the company a few days after letters describing the Employee Investment Plan and its latest investment option were mailed to Grummanites. The new higher rates described above supersede the rates listed in the letter, says Bob Bradshaw, Grumman Corporation Secretary.

Earlier this month, Grumman Corporation announced a 54 percent matching contribution to the Employee Investment Plan for the third quarter of 1978. The company's matching contribution is based upon Grumman's financial performance during the four quarters which preceded the announcement — in this case, the last three quarters of 1977 and the first quarter of 1978.

Kintner to scholars:

'Next 50 years...most important in human history and progress.'

"If we don't harness fusion energy within the next few decades, we are going to be living on a very cold planet," Ed Kintner, director of the Office of Fusion Energy, told attendees of the annual Grumman Scholarship luncheon on June 5.

Accompanied by their parents and guidance counselors, this year's Grumman Engineering and Science Scholarship winners met with top Grumman officials during the luncheon held in their honor at the Holiday Manor, Bethpage.

Kintner specifically stressed the importance

Welcome to Grumman. *Following a tour of the Bethpage Facility, dependent scholars (L to R) Nancy Altmayer, Suzanne Wenz and Richard Markeloff are greeted by Grumman Board Chairman Jack Bierwirth. (Photos by Marie Trimborn)*

of the scholars' pursuit of science and engineering degrees, stating that the next 50 years would probably be the most important in human history and progress.

"Nature started storing our fossil fuels hundreds-of-millions of years ago," said Kintner. "As we use up virtually all of the earth's supply in the next 50 years, we must turn to new sources of energy, such as solar energy, and particularly fusion energy. We could use fission energy but the radioactive dangers inherent in fission make it much more palatable to harness fusion energy which will be safe and inexhaustible.

"The biggest problem with fusion energy," said Kintner, ". . .is that it's not here yet. We have to harness it. And some of you sitting in this very room, could eventually be involved in the most exciting technological breakthrough in the history of mankind. Harnessing fusion energy!"

In a short audio/visual presentation, Kintner presented the method for harnessing fusion energy (through magnetic containers or 'bottles' such as the Tokamak at Princeton) and mentioned the progress to date. "This corporation (Grumman) is taking part in an historic event which many years in the future will be looked upon as even a greater milestone than the landing of a man on the moon."

In his address to the scholars, Grumman Corporation Chairman Jack Bierwirth, stressed the importance of a corporation's responsibilities to the community. "It's not enough for a corporation to just make money for its stockholders. A corporation must earn its right to exist. It must do something worthwhile."

Then Bierwirth outlined Grumman's commitment to the energy crisis: the use of solar collectors, recycling of garbage for electricity, and the work on Tokamak and other fusion energy projects. In the near-term, Grumman's involvement with the environment includes its purchase

A scholarly chat. *Grumman Corporation President Joe Gavin welcomes dependent scholars (L to R) Louis Casagrande, Peter Knapp and Joel Kesselman.*

of Flxible mass transit buses as well as the development of Dormavac Hypobaric Storage containers. "We're trying at Grumman," said Bierwirth, "to do something to help solve problems, not only from a U.S. standpoint, but from a world standpoint."

At the conclusion of the dinner, Bierwirth, Kintner and Joe Gavin, president of Grumman Corporation, presented certificates to the scholarship winners and alternates.

Keep 'em coming. *The 200th A-6 Intruder to undergo modification from the A-6A to A-6E configuration recently arrived at Calverton. On hand to accept the milestone aircraft were (L to R) Lt. Cdr. John O'Brien, Naval Plant Representative Office's (NAVPRO) A-6 program manager; Frank Tortorelli, NAVPRO deputy A-6 program manager; and John Hughes, Grumman's A-6 modification manager. The A-6E modification program began in March 1973 when Grumman delivered its first updated Intruder to the Navy. The 240th Intruder — and last of the A-6E modification program — is slated for delivery in December 1979. (Photo by Jim Wagner)*

GRUMMAN plane news

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Capt. Endo -- new NAVPRO at Bethpage

Checking out four Grumman products— the F-14, the E-2C, the EA-6B, and the A-6E— is just one part of his new job that Capt. Norio Endo is looking forward to. "It's like having an auto dealer hand you the keys to four different cars," he says.

Capt. Endo relieved Capt. Bill Oldmixon, in a change of command ceremony on June 5, as head of the Naval Plant Representative's Office (NAVPRO) at Bethpage. In that post, he has the reponsibility of monitoring Grumman's relationship with the Navy and with the Department of Defense.

Expanding horizons

In his 22-year Navy career, Capt. Endo has flown the Grumman F-9 and the S-2F. He has not yet flown the four aircraft that Grumman is currently supplying to the Navy.

"Like any naval aviator, I'm always anxious

Capt. Norio Endo

to fly something new," says Capt. Endo, "but you don't always have the time or the liberty to fly all the airplanes the Navy has. Grumman is providing us with first-line products, all very highly regarded. I'm looking forward to becoming better acquainted with the aircraft, and with Grumman. The NAVPRO assignment is a challenging one."

Capt. Endo has been in the Navy since his graduation in 1956 from Johns Hopkins University. He was first assigned to Attack Squadron 95 in Alameda, California, and then to the Anti-Submarine Warfare Squadron 871 in Oakland, California, followed by an assignment as flight instructor at Naval Air Advanced Training Command in Corpus Christi, Texas.

Following that, he went back to Alameda, first to Attack Squadron 215, and then to Fighter Squadron 1. His next assignment was the Attack Desk, Command Naval Air Forces-Pacific (COMNAVAIRPAC) in San Diego, California.

At the Capital

Capt. Endo has spent the last four years at the Naval Air Systems Command Headquarters in Washington, D.C.; first at the A-7 Class Desk; then as Deputy for Air Vehicle, F-18 Project Office; and finally as Armament Division Director and Armament Program Manager.

Captain Endo is a graduate of the Naval War College and the Naval Postgraduate School, where he received a Master's degree in aeronautical engineering. He has been awarded the Distinguished Flying Cross, 13 air medals, and two Navy commendation medals. He and his wife Kim have three daughters, Michelle, Tracy, and Kiyomi; and one son, William.

Capt. Endo expects his assignment with Grumman to last approximately two years.

obituaries

EDWIN ALBRECHT JR. of Research, Plant 26, died June 4 at the age of 60. He had been with the company since 1962 and resided at 110 Fox Hollow Road, Woodbury.

WALTER ALLES of Mass. Prop. Analysis and Cntl., Plant 35, died June 3 at the age of 57. He worked for Grumman since 1956 and resided at 21 Abrew St., Bayshore.

THOMAS G. DUNN of Support, Plant 6, died May 31 at the age of 49. He had been with the company since 1965 and resided at 118 Kingsland Ave., W. Islip.

GLADSTONE McCORMICK of Rqmnts. Plng., Plant 43, died June 4 at the age of 62. He had been with the company since 1969 and resided at 473 Michigan Ave., Ronkonkoma.

SALVATORE SCIASCIA of ILS Qual. Cntl., Plant 15, died May 26 at the age of 45. He worked for Grumman since 1967 and resided at 1069 Ft. Salonga Rd., Northport.

Personals

My family and I wish to thank my co-workers and friends for their kindness and expression of sympathy during the recent loss of my mother. Jack Egozcue

I wish to thank all my friends at Grumman and Employee Services for their kindness and sympathy during the recent loss of my father. Doug Koubek and family

My wife and I wish to express our sincere appreciation to all our friends at Grumman for their prayers, flowers and cards during her recent illness. Bill Bayer

My children and I would like to thank our Grumman friends and Employee Services for their expressions of friendship and sympathy during the recent loss of my wife. Bill Cross

I wish to thank all my co-workers and friends at Grumman for their flowers and cards during my recent illness. Viola M. Drinkwater

My family and I wish to thank all the friends and co-workers who expressed their sympathy during the recent loss of my father. Jean Harrison

My family and I wish to express our sincere appreciation to our many friends and co-workers for their thoughtfulness and sympathy during the recent loss of my mother. Sal Sakellarides

I wish to thank all my friends and Employee Services for their kindness during the recent loss of my mother. Jay Mule

Wounded Prowler returns to Calverton

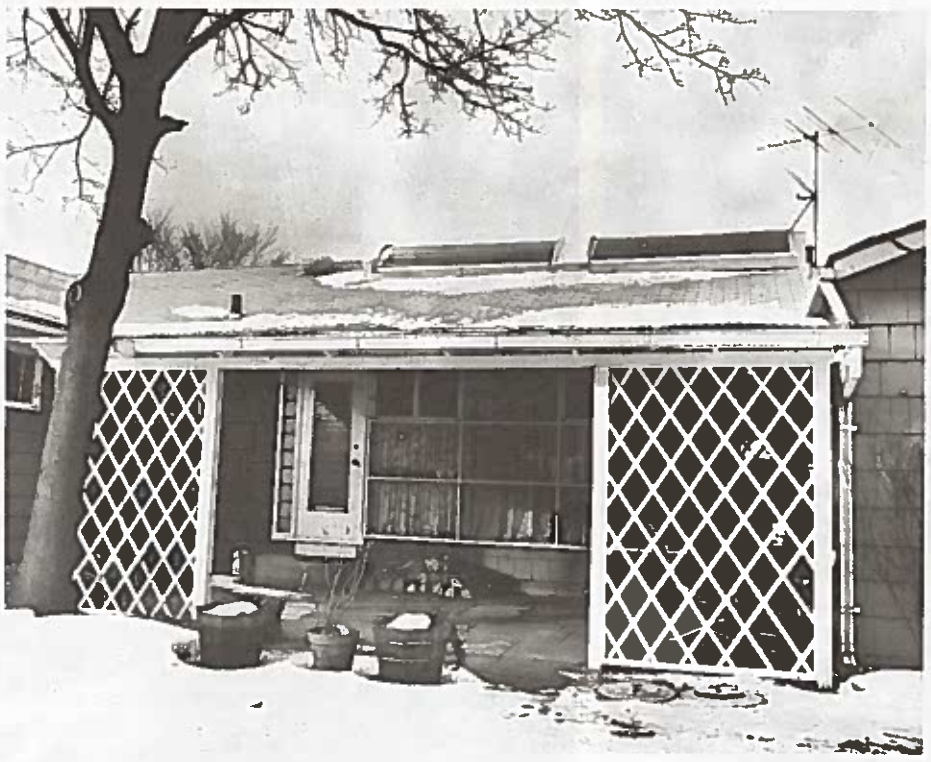
There were some mighty surprised and curious onlookers along the major thoroughfares of Suffolk County on June 1. Who would expect to see a jet plane trucking on down the avenues? But that is exactly what people saw as an EA-6B Prowler moved along a circuitous route from Port Jefferson to Calverton.

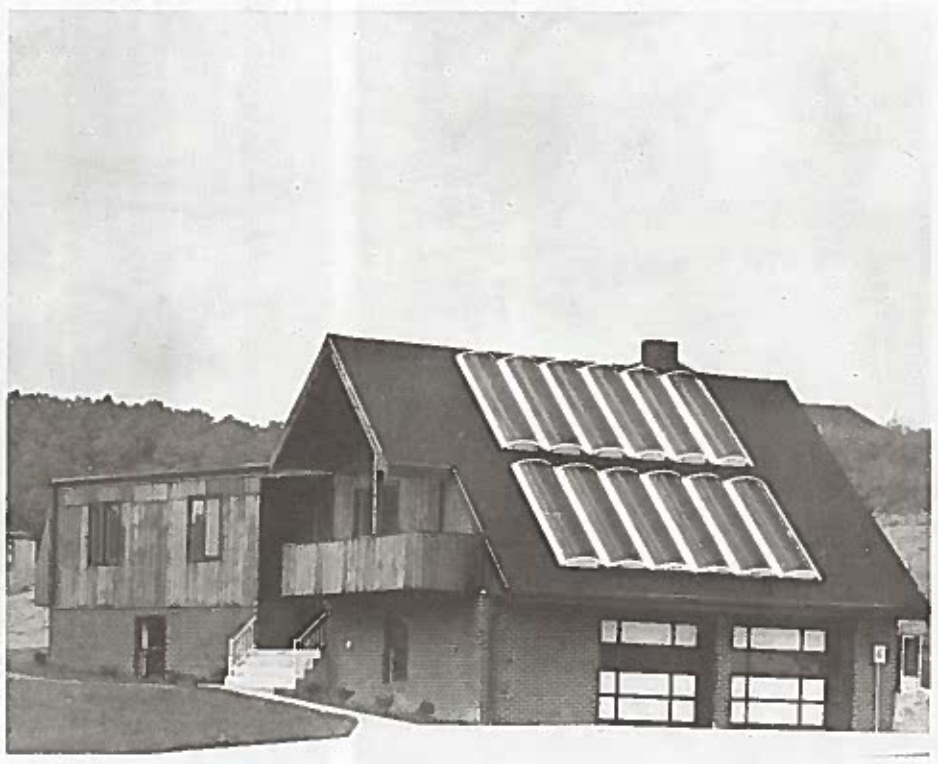
The Prowler had sustained damage on a carrier during a pre-deployment exercise off the coast of Florida. After being off-loaded in Jacksonville, the Navy determined that the damage to the EA-6B was too extensive for them to repair . . .but it would be cheaper to strip down and rebuild the craft than build a new one. The Navy then contracted Grumman to repair the wounded Prowler.

The Prowler was barged from Jacksonville to Port Jefferson where it was off-loaded and turned over to a Grumman crew for delivery to Calverton. Al Stevens, assistant production manager of the A6/EA-6B program and Bob Kalin, Alan McCaffery, Leroy Ackerly and Phil DeLuca, took the Prowler through a zig-zag route along the major arteries of Suffolk County.

They had a problem of width and height to contend with. By using Routes 112, 347 and 25A, the width problem was solved. The height problem required a little more ingenuity. When necessary, the crew used long poles to lift traffic lights and wires high enough for the Prowler to move under.

Though the EA-6B was being towed, it was necessary for Ackerly to man the cockpit. He had to steer and brake the Prowler throughout the two-hour and twenty-minute journey. The Port Jefferson to Calverton commute normally takes around 20 minutes but then again, how many Prowlers do you see on the roads? (Photo by Gerry Costello)





Nationwide. *Grumman Energy Systems' Sunstream systems are conserving energy across the nation — from the shores of Long Island to the Pacific coastline. Above, a Sunstream domestic hot water heating system is shown on a Long Island home; at the right, new homes in West Virginia sport the Sunstream collectors on their roofs. (Photos by Fred Annette)*

GESI offers 10 percent discount on Sunstream system

If you are contemplating tapping the sun's energy to help you beat the rising costs of energy, Grumman Energy Systems, Inc. (GESI) has good news for you.

The Grumman Corporation subsidiary is offering all Grumman employees and retirees a 10 percent discount on its Sunstream Model 60 Series Collectors and Systems for domestic water and space heating as well as collectors for swimming pool, whirlpool and hot tub heating. It is an on-going discount program in which Grummanites purchasing Sunstream equipment from an authorized dealer will receive a 10 percent discount on the current suggested retail price in the form of a rebate from GESI. Installation, materials and labor costs *are excluded.*

How the program works

All Grummanites will receive their own personalized discount card during the week of July 3. A list of Sunstream dealers which will be up-dated monthly will be posted during the week of June 26 in every Employee Services and Field Base Administration Office and on bulletin boards. Retirees will receive a dealer list with their discount card. (If you don't find a Sunstream dealer within a 50 mile radius of your home, contact GESI at (516) 737-3777; they will be happy to assist you.)

Call or visit your nearest Sunstream dealer for product literature; information on local, state or federal solar benefits and/or regulations; and to discuss your particular requirements. When you decide to make a purchase, you submit the discount card to the dealer who in turn will fill in all information asked for on the card and send it along with a copy of the bill of sale to Grumman Energy Systems' Headquarters. Your rebate will be mailed to you by GESI.

Since prices and specifications are subject to change without notice, Grummanites will receive a 10 percent discount based upon the suggested retail price at the time of purchase. If you find a dealer that offers less than the suggested retail price, your rebate will still be based upon the current suggested retail price. Authorized Sunstream dealers are located throughout the U.S.A. and Canada and have been fully trained by GESI as to how the System can best be installed. Dealers also have access to GESI's engineering staff for technical assistance.

All Sunstream products carry a special five year limited warranty which covers all Sunstream components against defects. Home owners pay nothing for parts removal and re-installation, labor and shipping. If you should sell your house, the warranty is transferred to the new owners.

Why solar now?

"The costs of conventional energy are on the rise — so taking advantage of the sun's free energy is financially practical, and completely non-polluting." says Ron Peterson, GESI President. "Today, the most economical applications for solar energy are in the areas of domestic water heating for existing homes as well as new construction, swimming pool heating, whirlpool bath and hot tub heating. Space heating is also practical, but will almost always be most practical for new construction," states Peterson. "Because solar water heating systems can save considerable energy, and because the demand for domestic hot water is nearly constant throughout the year, a solar domestic water heating system is probably the first solar investment a home owner should consider."

Added Peterson, "Savings are considerable because the hot water that an average family of four uses for showers, bathing, washing clothes and dishes adds up to more than 27,000 gallons each year. The cost of heating this water may represent from 15% to 40% of the home owner's total annual heating bill."

"In a solar domestic water heating system such as Grumman Sunstream's the sun's free energy enters the collectors and is transferred to a fluid. The heat energy is then transferred from the fluid, through a heat exchanger, to water in the system's storage tank. In turn, this tank feeds solar heated water into your existing water heater. Substantial energy is saved because the preheated water requires less additional energy to raise it to the desired temperature," Peterson concluded.

The following Sunstream products are available under the discount program. (Current suggested list prices included) —

Sunstream Solar Domestic Hot Water Systems

Model 60AS — An aluminum, indirect (closed loop) system, for use in all climates, includes: two model 60A solar collectors, one 82 gallon glass lined steel tank with external aluminum heat exchanger, uninsulated, circulating pump, expansion tank, thermostatic control with sensors, special system installation components, four gallons Sunstream antifreeze. $1238.00

Model 60AST — Same as the 60AS system above with insulated, enamel jacketed tank and components factory mounted, wired and piped. $1439.00

Model 60FS — A copper, indirect (closed loop) system, for use in all climates, includes: two model 60F solar collectors, one 82 gallon glass lined steel tank with external copper heat exchanger, uninsulated, circulating pump, expansion tank, thermostatic control with sensors, miscellaneous system installation components. $1349.00

Model 60FST — Same as the 60FS system above with insulated, enamel jacketed tank and components factory mounted, wired and piped. $1521.00

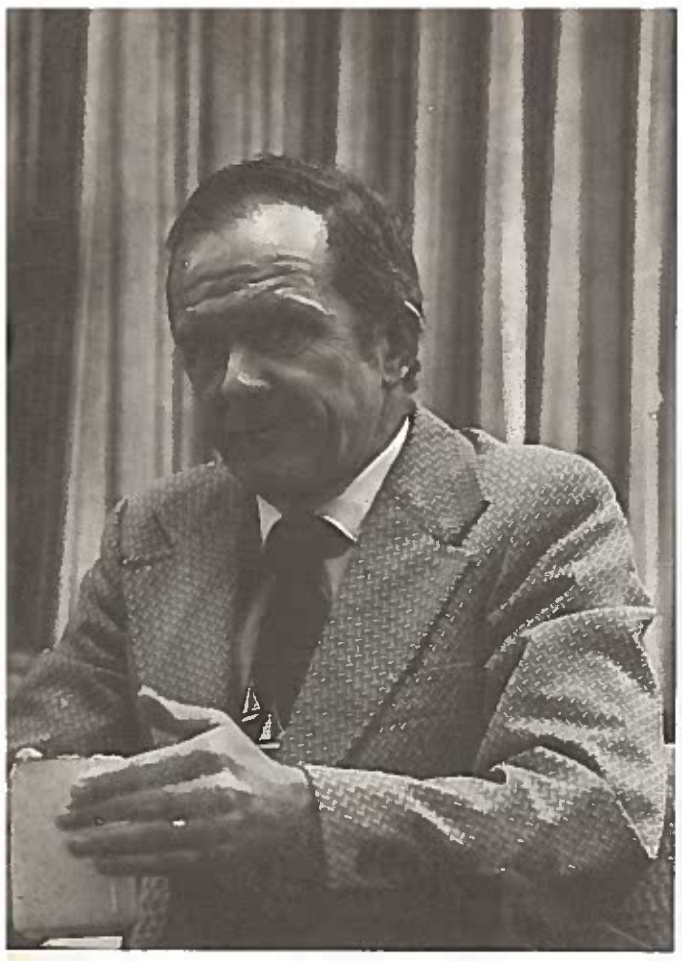
Model 60FD — A direct (open loop) system for non-freezing climates, includes: two model 60F solar collectors, one 66 gallon glass lined steel tank, insulated, enamel jacketed, thermostatic control with sensors, circulating pump, miscellaneous installation components. $1249.00

Sunstream Solar Collectors

Model 60A — Aluminum Rollbond collector plate encased in aluminum chassis with arched acrylic cover, fully assembled for use in closed loop systems. $281.00

Model 60F — Finplank collector plate, featuring copper fluid passages, encased in aluminum chassis with arched acrylic cover, fully assembled for use in open or closed loop systems. $322.00

Model FP — Finplank collector plate for use in swimming pool heating. $177.00



Profile: Tom Kelly, Vice President-Engineering

A new PLANE NEWS series begins this month with an in-depth conversation with Tom Kelly, Vice President-Engineering.

Called *Profile*, this new monthly article will feature interviews with Grumman's top corporate officials about their respective areas' impact on the company's past, present, and future.

In the following interview, Kelly discusses the world of Engineering . . . its past accomplishments, its role at Grumman today, and the preparations underway to meet the challenges of tomorrow.

Could you briefly explain how Engineering is set up?

Engineering is basically organized into three directorates — Systems Engineering, Design Engineering, and Engineering Test Operations. Generally, the engineering work flows in that order.

For instance, when the company receives a proposal from a customer, it is the Systems Engineering people who analyze what the customer wants and set out to meet those requirements.

Design Engineering takes all the information from Systems Engineering and turns out all the things needed — drawings, parts lists, etc. — to begin assembling and manufacturing of the hardware.

While the product is taking shape, Engineering Test Operations runs engineering developmental tests, making sure the product will comply with the requirements that Grumman originally promised the customer.

So, basically, Systems Engineering is the playmaker, Design Engineering is the executor, and Test Engineering Test Operations, the referee?

Yes. Our Systems engineers are primarily analysts. Their specialties lie in aerodynamics, propulsion, thermodynamics, structures, stress, etc. They draw up the reports, specifications and analyses which provide the basis for the design. This effort is directed by Norm Lewin.

Design Engineering is also broken down according to specialties such as structural, power plant, or environmental control. Under Will Bischoff, these engineers generate specific designs that meet the requirements set by Systems Engineering. This group also generates all the drawings, bills of materials, and parts lists for other company areas, most notably Manufacturing, Procurement and Material.

Ground tests of a developmental nature are handled by Erwin McCalla's group in Engineering Test Operations. If they discover shortcomings in the design, they go back to either Design or Systems Engineering people to correct them.

How does Engineering interface with other Grumman departments?

We are structured to function within the matrix organization of the company. We're the keepers of the skills and the technology . . .sort of the corporate memory bank. It builds up a reservoir of experience and know-how and techniques for application on specific projects and programs.

All programs at Grumman are organized under a specific manager; he is responsible, across-the-board, for all aspects of the program. Each discipline or corporate activity, Engineering and Material Management, for instance, that is associated with a program also has a manager who is responsible to the program manager.

Our Engineering manager who reports to us as well as the program manager has a team of Engineering people assigned to him for the duration of the program.

In Mike Pelehach's world of Business Development, for example, we have our engineering people helping to prepare proposals on new designs. We try to rotate our engineers from hardware implementation work to the preliminary design type of work to keep their skill and awareness levels high in both areas.

What are some of the major technological advances you see coming down the pike in Engineering?

Looking at the aerospace world today, the engineering segment is changing rapidly. There are changes both in the products we design and build — and in the way we perform our jobs as engineers.

The products themselves are being strongly affected by several developments and breakthroughs in technology that are coming about rapidly.

Foremost is the evolution of microelectronics. We now have airborne electronics which make it possible to fully integrate digitally all the systems in a typical flight vehicle. Today we are dealing with *one* integrated system. All the systems you can think of in an aircraft — such as flight control, navigation and communication, as well as the mission related weapon systems — are all combined into one functioning system acting as a whole.

To make it even more interesting, there has been a parallel development in the area of cockpit displays and controls. This allows us to display information to the pilot in a digital fashion on a TV-like tube in a very flexible format. In the future, a pilot will just push a button and the information he wants will appear on the tube.

With these advancements, we now have the added capability of having a fully multi-purpose display system that allows us to get rid of the myriad gauges and switches today's aircraft have.

Frankly, we are now experimenting with many possible improvements to the system that can ease the pilot's task. We've been so accustomed of thinking in terms of the limited capabilities of dials and gauges that we now have to adjust to the new world at our disposal. We're like kids in a candy store . . .but our decisions have to be practical and within our ability to "pay" for all those changes.

Would this new cockpit concept be applied to V/STOL?

They would be applied to any new aircraft program, but particularly to V/STOL where a pilot is dealing with a tricky flight regime. The future cockpit would supply good simple displays for the pilots. . .'what's happening now? what should I do next?', so to speak.

What other areas will affect the aircraft of tomorrow?

Another area that will have a definite impact on all future aircraft is light-weight, high-strength materials. Grumman has been a leader in this field for a number of years. We are keeping our hand in it, largely with development work sponsored by the U.S. Air Force laboratories at Wright-Patterson Air Force Base.

The main reason for interest in this technology is that it makes it possible to not only further reduce the weight of aircraft structures, but also reduce their costs — both initial cost and long-term ownership cost as well. With composites, we can get away from corrosion problems, which is one of the main cost elements in today's conventional naval aircraft.

Of course, there is major emphasis in that area right now. It applies to advanced technology Air Force fighters and V/STOL. In fact, the whole technology of V/STOL is advancing so rapidly that it, too, is changing our thinking in aircraft design. The advances in propulsion system, light-weight structures, and integrated flight systems are, for the first time, making V/STOL with a sizeable payload a very feasible capability for carrier operations.

What other areas is Engineering concentrating on?

Reliability. With the U.S. Navy and from our NASA space experience, we've learned what it takes to get a highly reliable aerospace system. It takes a lot of attention to design detail at the front end of the program. . .added emphasis on testing, particularly early testing. Today there is a rigorous system of failure analysis, since there is no such thing as a random system failure. For if we ignore it, it will just keep happening over and over again, and this can get to be very expensive.

Together with the Navy we are creating today a new look in reliability and maintainability. We've implemented a number of improvements on the F-14 which have already brought the operational readiness up quite dramatically within the last year. And we think we can do even better.

Reliability must be designed and built into a product. It is now equal partners with operational performance, weight and cost.

How has the way engineers perform their jobs changed?

Just as digital calculators made the slide rule extinct, the computer-aided design systems will eventually eliminate the engineers' drafting boards.

Computers have always been used heavily by engineers. However, up until recently, the computer's output was limited to numbers and calculations. It lent itself primarily to analytical work.

But, in the past few years, there have been dramatic changes in computer capabilities. Today, engineers can perform drafting and graphic work right on the computer's cathode ray tube terminals. Engineers can create drawings right on the screen with a light pen.

When did the company begin using this new computer system?

About four years ago, we began to get very serious about exploiting this design tool. At that time we posed the question: should we invent our own computer system to do the job or buy some of the newly emerging systems on the market. We decided to buy a Lockheed system called CADAM (Computer Aided Design and Manufacturing System).

We've improved on the CADAM system. In fact, we have improved it to such a point that we now call it GEMS (Grumman Engineering and Manufacturing System). GEMS is now stepping right into the production mode.

Earlier this year, we decided we were ready for something really big — so we took on as much of the G-III engineering drawing work we thought we could handle. Our growth is evident. In the beginning of 1978, we had four GEMS terminals; today we have 14 scopes. We use eight terminals during two shifts on the G-III.

In short, we are making giant strides in making the computer work for us in more and more areas. Right now it's not feasible to use the computer for changes to existing hand-drawn drawings, but if it's new design work, GEMS is the way to go!

'There has always been an innate respect for engineers within the company which we hope to maintain by keeping our technical capability right at the forefront of the industry.'

What impact does GEMS have on Manufacturing?

Engineering is only the tip of the iceberg. In addition to reducing drafting costs, the really big savings are in manufacturing and tooling. Manufacturing can retrieve and use the same data created by design engineers. They call it up on their own GEMS terminals, make their own modifications to it to create drawings for tooling fixtures or to make cutter path drawings for numerical control milling machines.

In fact, you can try out the cutter path right on the terminal screen. When you're satisfied that the path is correct, you push a button and the computer supplies the punched tape program for the automated milling machine. You don't really need a drawing at all.

In fact, earlier this year, we tried out GEMS on the F-14 TARPS, a newly designed pod that will house reconnaissance equipment for the Tomcat. GEMS handled this select structural job quite nicely and very successfully. We were able to make the manufacturing form blocks directly from cutter information stashed in the GEMS data base. The entire job had 30 percent cost savings due to GEMS. It definitely built up our confidence.

How do you think Grumman management views Engineering?

We are in a high technology business. Jobs and our ability to win new work are highly dependent on our innovativeness in devising products which are technically and cost competitive, and which meet a real mission need. There has always been an innate respect for engineers within the company which we hope to maintain by keeping our technical capability right at the forefront of the industry.

Management is concerned about engineers not being cost conscious. We've been able to change that greatly over the last three or four years, I think, thanks to the Design-to-Cost program.

In this program, we've put in the hands of engineers the useful and accurate cost information that has enabled them to make intelligent choices and tradeoffs in various designs. It allows us to balance such considerations as weight, reliability, etc., against the relative cost of benefits derived from improvements in these areas.

In short, we insist on high-level technology performance on schedule, and within budget. It must be in balance — every day.

Engineers do have the innate curiosity that keeps them looking for the best solution to problems. However, it's important how we pose the problems to them in terms of achieving a certain level of performance within certain cost and schedule constraints. Engineers know how to respond.

What is the most frustrating part of your job and what are the satisfactions?

The Grumman engineering world covers an extremely broad scope, and I'm not able to get as technically involved to the depth I'd like.

(Continued on page 8)

Come join Grumman family at July 15 picnic

The 37th Annual Grumman family picnic gets under way at Calverton at 8 a.m. (for earlybirds) in just three short weeks. The picnic is being held on Saturday, July 15, at the 12-acre site and is sure to be the family event of the year.

Grummanites and family members living under the same roof are invited to attend. Tickets are on sale at all Employee Services offices and they are still only $3.00 per person. Children under 12 will be admitted free. *No tickets will be sold at the gate.*

Food and beverages will be plentiful and a full schedule of games and entertainment is on tap. There will be dancing and yo-yo contests, softball and kiddie boxing. The picnic ground's rides will be in full swing as the Tilt-a-whirl, merry-go-round, caterpiller, boat rides, railroads and mini-ferris wheel will delight children of all ages.

It takes people

Hundreds of people are involved in the preparation of the picnic. Although the gates open at 8 a.m., it officially begins with the flag raising ceremonies at 10 a.m.

Following that ceremony, various sporting events and games, such as 30-yard potato sack races, wheelbarrow races, egg throwing contests and pick-up softball and basketball games, will test the athletic skills of young and old. You can dance too. The Grumman Employees band will furnish dance music from 10:30 a.m. to 2:00 p.m., take a short break, then play until 4:45. New this year, a yo-yo contest will commence at 12:00 p.m. and at 3:00 p.m.

At noon, there will be a five-act show, always a children's favorite, that includes magicians, clowns and animal acts.

And, of course, there will be a drawing of door prizes, starting about 2:30, that in past years has included such items as TV sets and large and small appliances. ES representatives will announce the lucky winners of over 100 prizes, so be sure to hold on to your ticket stubs.

What to bring

The picnic plans for your needs but there are still things you may want to bring for your own convenience. Tablecloths, cups, napkins, folding tables and chairs may enhance your comfort. Also, pitchers and ice coolers are handy to avoid repeated trips to the refreshment stands. Food will be plentiful, but, if you wish to cook your own meals, feel free to bring along a grill and some charcoal.

The Grumman Medical Department urges all those who plan to attend the annual picnic to follow a few basic suggestions to help avoid health hazards. All fires should be put out completely with water poured over the coals. Also, charcoal grills should be kept out of foot paths.

Parents are urged to keep close watch over their children — overeating and too many beverages can result in upset stomachs.

By following these few suggestions, the Medical Department hopes that your day at the picnic will be both enjoyable and accident-free.

Directions to Calverton picnic grounds: Take Long Island Expressway to exit 69, Wading River Rd., head north to Route 25, turn right and follow the signs; or LIE to exit 68, William Floyd Pkwy., north to Route 25, turn right and follow the signs. From the east, you may prefer to go north on Edwards Avenue, Route 71 off the LIE. Route 71 goes directly to the facility, then follow the signs.

But if it rains

If it should rain on July 15, the picnic will be rescheduled for Sunday, July 16. If a postponement is necessary, it will be announced early Saturday morning over the following radio stations:

WBAB, Babylon (FM 102.3); WNYG, Babylon (1440 AM); WGBB, Freeport (1240 AM); WLIR, Garden City (FM 92.3); WHLI, Hempstead (1100 AM); WGSM, Huntington (740 AM); WLIX, Islip (540 AM); WALK, Patchogue (FM 97.5, AM 1370); WRIV, Riverhead (1390 AM); WLGN, Sag Harbor (1600 AM).

You can also find out about a postponement by calling LR 5-5111 in the Bethpage area, or 369-2266 in the Calverton area.

For the record...

In the short span of 22 years, the Guinness Book of World Records has become recognized as the all-time authority on human achievement and world records. And next year's Guinness book could include a new world record that you and other Grummanites can help set on Saturday, July 15.

Charlie Fuschillo, director of Employee Services, expects upwards of 40,000 people to attend this year's Grumman Family Picnic at Calverton, and that, by far, will set a world's record for attendance at an outdoor picnic or banquet.

The Guinness book lists the largest outdoor banquet as being staged in Paris, France on September 22, 1900 — 22,000 mayors and deputies attended the event. In 1976, at the Indiana Fairgrounds in Indianapolis, 13,363 people were served an indoor dinner. Last year, Friendly Ice Cream served 11,000 pancakes on a 1,500-foot breakfast table which snaked through the streets of Springfield, Massachusetts.

But this is small potatoes, says Fuschillo, when you compare it to the annual Grumman picnic. "We'll serve more than 40,000 hot dogs, over 80,000 cups of soda and 75,000 cups of beer. In fact, it takes the coordination of hundreds of people just to organize and run this picnic."

Remember the gates open at 8 a.m., but you can't buy your tickets there. You must purchase your tickets at an Employee Services office. They are on sale now. See you at the world's biggest picnic, a day to remember for you and your family. A record shattering day!

Junior gloves

Entrant's name .....

Age .....Weight.....

Sponsor's name.....

Dept.... Plant..... Ext.....

Entries to be forwarded to Howard Healy — Plant 1 Employee Services

service milestones

R.H. Kopping

R.R. Huntington

R.J. Kafka Jr.

D.A. McKendrick

G.W. Kmiotek

35

Herbert F. Oldehoff Jr., Sub-Assy. (2)
Rocco D. Costantino, Flt. Ops. Inspect. (7)
Lewis Golden, QC Lab. (10)
Charles G. Fredericks, Metal & Weld. Engg. (12)
Frank A. Bruscino, Ctr-Sect. Major & Subs. (36)
Victor J. Bollo, Vehicle Liaison Engg. (2)

30

George F. Bonanza, Prototype (1)
Gandolfo A. Messina, Prototype (1)
Christopher M. Mullins, Sub-Assy. (1)
Rudolph J. Picone, Fuse. Fwd. Sub. & Major (1)
Duncan Whelan, Cent. Storage & Retriev. (1)
George H. Halleran, Prototype (2)
Edwin M. Reynolds Jr., Steel Parts Assy. (2)
Frank Pietrocarli, Sub-Assy. Major (2)
Michael J. Russo, Prod. Plnng. (2)
Frank A. Salvato, Assy. (3)
Richard S. Stevens, Assy. (3)
Harris S. Dayton, Mach. Oper-Tech. Serv. (3)
Karl J. Fred, Maint. (12)
Timothy J. Mulvihill Jr., Pl. Protect. (18)
Theodore H. Moorman, Prog. Mgmt. F-14A (25)
Louis F. Prudhom, Prod. Super. (36)
Frank J. Kmiotek Jr., B/P Warehouses (37)
Albert J. Jasinkonis, Maint. (44)
Thomas H. Cross, Circuit Anal. (44)
Daniel T. Strauss, F-14 Final Assy. (77)
Michael C. Fix, Cust. Supply Rqmts. Mgmt. (81)
Jaroslav F. Bocek, Production (88)

25

Robert H. Kopping, Mfg. Tech. Prod. Serv. (1)
Raymond R. Huntington, Mfg. Tech. Mgt/Staff (2)
Richard J. Kafka Jr., N/C Mach. (3)
David A. McKendrick, Maint. (12)
George W. Kmiotek, Maint. (14)
Allan C. Kane, Matl. Mgt. M/S (30)
Robert W. Yezek, FAC Admin. (30)
Anton J. Bartoldus, Environ. Cntrl. & Test (31)
Howard M. Schilling, Struct. Des. (35)
William H. Gentzlinger, Gulfstream III (35)
Louis A. Arseneau, Prog. Proc. Hydrofoil (40)
Donato J. Pescitelli, F-14 Aft. Sect. Assy. (77)
Robert N. Morselli, Elec. Sub. Assy. (77)

20

Grace M. Poirot, Repro Serv. (1)
Patsy Pagliarulo, CTR Sect-Sub. Assy. (2)
Frank A. Montalto, Prod-Cntl-Parts (2)
Fred J. Badalamente, Assy. Meth. & Plng. (2)
Edward T. Kobus, Form Block (2)
Alexis W. Vogel, Cutter Grinder (2)

Robert Kulp, Mfg. Sched. (2)
Stanley G. Jastemski, Trans-Ops. (2)
Richard E. Behr, Insp-Tooling (2)
Charles J. Fuschillo, Employee Serv. Cntr. (2)
Bernard V. Cody Jr., Mach, Ops. Mgt/Staff (3)
Frank Lee, Stockrooms (3)
Philip J. Herte, Maint. (3)
Donald A. Osterbery, Maint. (3)
Paul H. Wiesehan, Convent. Mach. (5)
Herbert W. Steel, Convent. Mach. (5)
Frank Caparo, Suppt. Equip. Prod. (5)
John C. Magin, ILS Elect. Engg. (5)
Guillermo Rivera, Maint. (5)
Charles H. Stumpf, Power Plt. Des. (5)
Roy A. Erlandson, Cont. & Mech. (5)
Leonard V. Woods, Crew Syst/Equip. Integ. (5)
Vladimir Seredinsky, Aero. Des. (5)
Kurt Reupke, Aero. Test (5)
Walter J. Valckenaere, Stab. & Cntrl/Flt. Qual. (5)
Walter J. Ludwig, Adv. Syst. Tech. Mgt/Staff (5)
John G. Wagener Jr., Ops. Anal. (5)
Bernadette Gately, Financial Op/Secretaries (5)
Gordon Quanbeck, Orig/Spec Est. (5)
Ralph R. Aurora, Cust. Rqmts. (5)
Charles W. Smith, Maint. (6)
Charles Butterick, Final Assy. Insp. (6)
Robert E. Magee, Corp. Instr. Ops. & Projs. (7)
Kurt J. Hofmann, Prog. Mgt. F-14A (7)
William D. Irish, Prod. Mgt. & Staff (8)
James E. Kavanaugh Jr., Adv. Matl. & Process Dev. (12)
Robert P. Nestor, ILS Rqmt. Def. (14)
Ralph P. Palomba, Lab Mgt. & Tech. (14)
Raymond J. Jaeger, Repair Cntrl. (17)
Nicholas Bazzicalupo, Equip. Lines (25)
Frank T. Link, Struct. Des. (25)
Nicholas Markeloff, Struct. Anal. (25)
William P. Guarino. Commun. Nav. & I.F.F. (25)
Herbert Glickman, Navig. & Cntrl. Equip. Des. (25)
Herman E. Erbacher, Adv. Devel. (25)
Eugene A. O'Brien, Proc. Serv. (30)
John Gallagher, Mat. Shortage Cntrl. (30)
Edward C. Kuchlewski, Rec-Insp-Elect. Test Lab. (31)
Robert J. Mosca, ILS Syst. Tech. Mgt. (35)
Edward R. Rode, Struct. Des. (35)
Douglas H. Grundy, Power Plt. & Environ. Staff (35)
Michael R. Izzi, Cntrl. & Mech. (35)
Allen D. Ridley, Performance (35)
Salvatore J. Iaccarino, Redundant Struct. (35)
Edward Magnani, Dynamics (35)
Russell P. Goss, Dynamics (35)
Morton Mantus, Struct. Mech. (35)
Raymond W. Labell, Weight Optim & Tech. Devel. (35)
Robert H. Davison, ILS Prog. Mgt. (40)
Thomas F. Daly, Environ. Cntrl. Des. (40)
Gerald L. Caruso, Syst. Anal. (40)
Vincent C. Angeloro, Weight Optim. & Tech. Devel. (40)
Donald P. Bennett, Tehran Ops. (60)
Remo C. Campanile, Environ. Cntrl. Des. (72)
Rodney L. Harmon, QC Supplier (87)

15

Harold J. Wicker, ILS Mech. Engg/Des. (1)
Stephen J. Bucca, ILS Resource Cntrl. (1)
Stanley C. Wroblewski, ILS Verif. & Suppt. (1)
Warren E. Christopher, Tech. Rqrmt. (1)
Theodore C. Kelley, Field Ops. Staff (1)
Sidney M. Stone, Supp. Equip. Serv. (1)
Frank Tomori, Pride Line (2)
George A. Robertson, Prod. Cntl. Parts (2)
George E. Nauheimer, Prod. Cntl. Parts (2)
Anthony Mascolo, Mfg. Prog. Mgt. (2)
Charles S. Triolo, Stockrooms (2)
Harry W. Hoglund Jr., Special Tool Des. (2)

A.C. Kane

R.W. Yezek

A.J. Bartoldus

H.M. Schilling

W.H. Gentzlinger

L.A. Arseneau

Frank Archacki Jr., Conventional Mach. (3)
Enrico F. Massi, Conventional Mach. (3)
Harvey W. King, Details (3)
Francis C. Davis, Details (3)
Edward B. Fricke, Mach. Oper-Tech. Serv. (3)
Joseph Giannone, QC Lab. (3)
Amelia P. Slater, Syst. Test/Flt. Integ. (4)
Dean T. Richmond, Conventional Mach. (5)
Jon P. Chiusano, Conventional Mach. (5)
Charles M. Esposito, ILS Equip. Tech. Mgt. (5)
William A. Meunier, ILS Elect. Pkg. (5)
Eddie J. Kovacs, ILS Syst. Des. Engg. (5)
Edith B. Cuti, Food Serv. (5)
Martin P. Bourbin, Aero. Des. (5)
Thomas F. Nelson, Fluid Mech. (5)
Gary I. Bigel, Reliability (5)
Robert M. Pfaltz, Corp. Contracts (5)
Stella K. Johnson, Wash. D.C. Office (5)
Randol V. Barrick, Corp. Plnng. Cntrl. & Budg. (5)
Kathryn L. Hager, Corp. Syst. (5)
William Lengyel, Maint. (6)
John C. Matejka, Jigs, Dtls. & Sub-Assy. (6)
Donald P. Murphy, Elect. & Mech. ILS Suppt. (6)
Gerald L. Mellman, Syst. Anal. (7)
Reginald T. Grant, Traj/Navig. & Guid. Anal. (7)
John G. Janis, Softwre, Devel. (7)
Robert S. McElhiney, Corp. Instrmt. Syst. (7)
Roger Herow Jr., Flt. Ops. (7)
Frank P. Daidone, Elect. Fab. (7)
Robert E. Overdorff, Prod. Deputy & Stain Foreman (7)
Michael Ciavarella, RF Equip. Prod. Suppt. (7)
John J. Munyak, QC Lab. (10)
Prisco A. Panza Jr., QC Qual. Engg. (10)
William O. Mathis, Maint. (12)
Stephen J. DeMay, Metal & Weld. Engg. (12)
Chester M. Gregory, Metal & Weld. Engg. (12)
Charles C. Maffe, Meas. Stnd. Lab. & Log. Ops. (12)
George C. Conroy Sr., Trans. Equip. Maint. (20)
Walter R. Belt, Fluid Power/Pyrotech. (25)
Joseph P. Alario, Thermal Syst. (25)
Frank J. Galuppo. Syst. Integ. (25)
John J. O'Keeffe, Syst. Integ. (25)
John S. McNamara, Tranj/Navig. & Guid. Anal. (25)
Thomas A. Brancati, Prog. Mgt. F-14A (25)
Joseph E. DeSimone, Prog. Mgt. F-14A (25)
Emitt W. Cancryn, Config. Data Mgt. (25)
Ada C. Colter, Medical (28)
Fred Bolda, Gen. Commodities (30)

(Continued on page 12)

Profile

Tom Kelly began his 25-year career with the company as a Grumman scholar in 1946. Upon receiving his mechanical engineering degree from Cornell, he became a Grumman propulsion engineer.

After serving in the U.S. Air Force from 1956-58, he briefly worked at Lockheed Aircraft and then returned to Grumman in 1959 as assistant chief of Propulsion.

Often referred to as "the father of the Lunar Module" and "Mr. LM," Kelly was deeply involved in the Apollo program, first as engineering project leader, and in succeeding years, in posts with increasing responsibilities and authority on the LM program.

From 1970-72, he served as deputy director of Grumman's Space Shuttle program. He was named Vice President in 1971, and, a year later, became director of Space Programs.

In March 1976, he was appointed Vice President-Engineering. In his present post, he reports to Larry Mead, Senior Vice President-Department Operations.

Tom Kelly

(Continued on page 7)

That can be personally frustrating to me. And what are its satisfactions? Realizing how inventive Grumman engineers are — and the way they rise to the challenge.

Many engineers are extremely adaptable to change. There are people at Grumman today who have earned themselves a very fine reputation in the field of fusion energy. Four years ago, nobody here knew anything about fusion. Today, we're right in the middle of it.

How does Grumman stack up against the competition?

That's a difficult question, one we ask ourselves continuously. We are reasonably close to a leadership position in most of the engineering technologies that are important to us. We are certainly not a leader in every field. In some, we may have the edge, but that's a fleeting thing. The others are always nipping at our heels. . .or we at theirs. In many areas, we are second-to-none; some we're neck and neck. If we feel we're behind in any area, we examine it carefully to decide if we can afford to stay behind. If not, we then try to determine how much time, money and effort it is going to cost to change our position. We're operating in an extremely competitive arena; we're competing against other companies that are much bigger. They have more resources to sink into technology. We have to be more selective; we hope we are making the right decisions.

How does the future look for Engineering?

Grumman has a line of fine products that have good potential for continued development. Engineering is right in the middle of this effort, breathing new life into old systems.

Take the A-6. The airframe looks basically the same as it did 20 years ago. But appearances are deceiving if you look at the weapons system. They are far more capable than the old ones. We are still enhancing the Intruders, installing the advanced CAINS and TRAM capability, and planning the prototype for the next step, the Radar Guided Weapons System (RGWS).

Another example is the E-2C Hawkeye. Upgraded year after year, the Hawkeye has evolved to where it is an order of magnitude more capable than the first WF-2 early warning aircraft. For instance, just recently, the E-2C ARPS (Advanced Radar Processing System) began operations in the Navy. It allows the Hawkeye to detect and track targets over land, over water, and at the shore line. In addition, E-2 people are working on new improved antennas, and a new memory processing system that will make the task of the task force commander less complex. It will make it easier to envision what is happening in the battle scenario, what the enemy forces are doing, what our forces ought to do, etc. That's what the E-2C is all about.

What about the F-14 Tomcat?

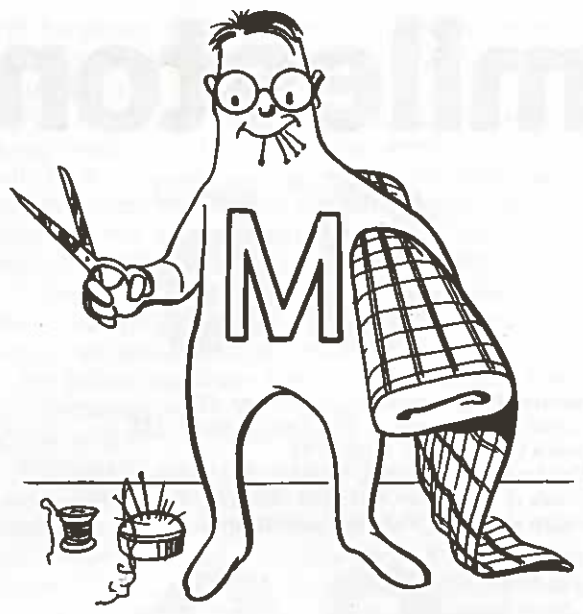
The F-14 is really ripe for life extension. We're already heavily into enhancing its programs and existing missions. We have a structural-life extension program underway, called CILOPS, or Conversion in-lieu of Procurement. It's an advanced systems version of what the F-14 could do using tomorrow's technology in its airframe.

The Prowler is also very adaptable to updates. The program is about to begin its third generation of improvements, called I-CAP III, to the electronic countermeasures aircraft. And I see additional improvements being made to all of our Grumman aircraft as technology advances. There's plenty of life left in them.

What about the new programs on the horizon?

These programs are going to be extremely competitive. Mike Pelehach (Senior Vice President-Business Development) and his people are out in the field fighting the battles to get us into a reasonable competitive position. We try to back them up with the right technology at the right time. It's exciting, challenging turf to explore, and Grumman engineers are not strangers to conquering new frontiers.

metrics



You've been eating a lot of Big Macs lately, and Baskin Robbins sees you so often they've come to regard you as a butterfat and cholesterol consultant. But is that enough to suddenly put you into size 86 jeans when you've been wearing 34's for years? Relax. You're not getting fatter — you're going metric.

Although it's not going to happen tomorrow, or even in the next couple of years, clothing in metric sizes will eventually work its way into your wardrobe. At first, clothing will probably be tagged in both sizes. For instance, a dress might be labeled "Size 8 - Fits waist 60 centimeters (cm) and hip 85 cm." However, by the time the country has fully adopted the metric system, you'll have to get used to a whole new set of sizes.

Clothing that is ordinarily labeled according to actual body dimensions will be the simplest changeover. For example, shirts, which are sized according to neck circumference and sleeve length; or pants, which go by waist measurement and inseam length. To find your metric size in the above items, multiply your present size by 2.54 (1 inch = 2.54 cm). Thus, if your shirt size is now 16/33, you'll be wearing a 41/84 when the nation goes metric.

Listed below are the most widely used metric sizes. U.S. sizes are *not* according to actual body dimensions.

Dresses		Hats	
U.S.	Metric	U.S.	Metric
8	36	6-1/2	52
10	38	6-3/4	54
12	40	7	56
14	42	7-1/4	58
		7-1/2	60

Shoes (Men)		Shoes (Women)	
U.S.	Metric	U.S.	Metric
6	38	4	34
7	40	5	35
8	41	6	36
9	43	7	38
10	44	8	38.5
11	45	9	40
12	46	10	41

Both clothing and shoe sizes are currently under consideration for standardized world sizes. This could come in handy if you're ever in Czechoslovakia and find a great pair of boots.

scorecard

The Grumman varsity golf team got off to a big start in defense of its Long Island Industrial League championship by defeating Republic 7-1 recently. Jim Minsky, Tony Cisco, Joe Gambino, and Jim Alverson combined for the win in the best-ball match, but the score was not indicative of the contest.

Minsky and Cisco were really put to the test by their opponents before winning two-up in the abbreviated 14-hole match. Minsky was even par and Cisco finished one-under on Bethpage's difficult Black Course. But Republic managed to hold the Grummanites even over the last half of the match to pick up half-a-point.

Gambino and Alverson didn't have it any easier in their foursome. After halving the first six holes, which gave Republic another half-point, Gambino and Alverson played one-under par over the last six holes to put the match out of reach for Republic.

Scouting trip. *Randy Smith, Buffalo Braves star basketball player and a native Long Islander, recently toured Plant 3. Plant Manager Sam Avati (L) displays the F-14 drop tank to Randy and Grumman hoopster Horace Green. With major rumors abounding about the Braves moving to the Coliseum, was Randy on a scouting trip of the Island? (Photo by Bob Settles)*

Hole-in-one...of sorts

On June 1, Frank Zarodkiewicz of Plant 1 Supply Operations let fly with a nine-iron to the sixth green of the Green Course at Bethpage and the ball did not stop until it kissed the bottom of the cup. "Hole-in-one, an ace, you got one," yelled Al Herring, Gerry Altmann and John Adams, all of Plant 30. And they duly witnessed the card. BUT WAIT A MINUTE! No one can hit a nine iron to the sixth of the green, not even Nicklaus.

Well, it seems there was a temporary green that day and the hole was shortened to 120 yards — still a tester and a nine iron was the right club for Zarodkiewicz. But because the green was temporary it is not an official hole-in-one. No ace, Frank, not officially. But since you've already bought the drinks for the guys in Plant 30, PLANE NEWS officially awards you two paragraphs and a typographical WHOLE-IN-ONE award.

Tourney of Champs

Clean up your golf clubs and practice your swing, the 1978 annual GAA Golf Championship and Kickers Tournament has been slated for August 9 and only the first 144 entries can be accommodated.

The $21 fee includes golf, cocktail hour with hors d'oeuvres, a buffet dinner, trophies and kickers prizes. Entries will be accepted starting today. Your money must accompany the entry form that you can pick up at the GAA office building next to Plant 2, or in ES offices at Calverton or Great River.

In this handicap and low-gross tournament everyone gets to tee-off at the same time. Contestants are assigned a starting hole, wait for a shotgun blast (we're not kidding) and commence play. This way, everyone finishes around the same time.

All of the usual prizes will be awarded for low gross, low net, a seniors division, ladies division, longest drive and closest to the pin.

For further information, contact Mike Cherry at GAA headquarters, Ext. 2133 or 2269.

Nite Owls hoot

The table tennis championship matches are over at Calverton. . . finally, and the Nite Owls finished last. Last to finish their matches that is. George Cordes won the singles championship with Al Stark placing second. Stark finished second in the doubles, too, as he and Ronnie Orito bowed to Rich Schoemmell and Vinny Rutkowski.

Bowlers of the year

The results are in for the eighth annual Tournament of Champions (see special bowling supplement). Jim Connors won individual honors for men with a high game of 245. Jan Cassford and Eileen Schroeder shared high game in the women's division with a 189.

For high series handicap, John Di Salvo rolled a 699 for the men and Olga LaBarbera finished with 641.

In the team competition, in which 29 teams competed, the Masters won the handicap series with a 2503 total. Just a "turkey" behind, Pub Mix rolled a 770 in the final game to fall out of first and finish second, forty pins higher than the third place Classic team.

Keglers needed

The Gold Mixed bowling league is planning to expand from 10 to 12 teams next season. Each team is composed of two men and two women. The new season starts in September. Bowling is on Wednesday evenings at the County Line Bowl in Farmingdale at 6:30 p.m. For further information contact Gene Harms, Ext. 4229, or John Klaus, Ext. 115-6035.

calendar

Alcoholics Anonymous: every Mon., 5 p.m., Pl. 15 conference room C; closed meetings; Personnel Relations, x3521; Calverton: every Mon., 4-5 p.m., Headquarters Building; Great River: every Wed., 4-5 p.m., Pl. 43 conference room 3.

Amateur Radio Club: Sat., June 24, 8 a.m. cont. thru Sun., June 25, 5 p.m.; McKay Field; ARRL Field Day: Bi-National Emergency Preparedness Test; all welcome. R. Schubnel, x3732.

Dance Club: every Wed., 5-8 p.m., Pl. 30 cafe; June 28, square dance/July 5, line dances; friends and relatives welcome. E. Murway, x4394/M. Brown, x3262.

Duplicate Bridge Club: every Thurs., 6 p.m., Pl. 30 cafe; open competition; guests welcome. S. Campbell, x3382/F. O'Lear, x5120.

Fencing Club: every Tues., after 4:30 p.m., Pl. 30 cafe; both beginners and experienced fencers; instruction and competition; GAC employees and dependents welcome. P. Chaldaris, x4331.

Flying Club: Fri., July 14, 5:00 p.m.; Pl. 28 auditorium; regular monthly membership meeting; film presentation; all welcome. R. Reisch, x3286.

Folk Dancers Club: every Tues., folk dancing, every Thurs., hustle and ballroom dancing; some instructions available lunchtime; receiving area, Pl. 6; all welcome. E. Urciuoli, x(117)6688.

Model Railroad Society: every Wed., 5:30-9:30 p.m., Model RR Bldg. (at Pl. 3 rr crossing); regular meeting; guests welcome. R. Muntz, x8101.

Scuba Divers Club: July 12, 7:00 p.m.; Chateau Restaurant, Brentwood; business meeting; all welcome. A. Andreiev, x5540.

Ski Club: Wed., July 5, 8:30 p.m.; Checkmate Lounge, Bethpage; summer activities will be discussed; all welcome. A. Barmendia, x7819/8910.

Tennis Club: 2nd Wed. of every month, 5 p.m.; classrooms A and B, Pl. 5. P. Andrews, x7345.

Toastmasters Club: Wed., June 28, 5-7 p.m., conference room A, Pl. 25; regular bi-weekly meeting; all guests welcome. J. Allison, x3475.

GAA offering trip to Hawaii

The Hawaiian vacation package has spurred a lot of interest, says Ellen Drasser of GAA. So many people have signed up for the summer trip that GAA has arranged for another Hawaiian vacation package for August 23 to September 7.

The trip costs $769 per person, based on double occupancy per room. The package includes: round trip transportation via United Air Lines; airfare via Hawaiian Airlines, on the Honolulu/Maui and Maui/Kona flights; seven nights accommodations in Honolulu at the new deluxe Hyatt Regency; four nights accommodations in Maui at the Wailea Beach Hotel; two nights at the Kona Hilton Beach and Racquet Resort; one night at the Naniloa Surf Hotel. In addition, GAA is offering optional sightseeing, entertainment, and dine-around packages.

For more information, call the GAA office, Ext. 2133 or 2269.

Be careful running

Warmer weather brings out the occasional runner, jogger and walker. The exercise can do wonders for the individual both physically and mentally. "But be careful," says Walter Berndt, Bethpage Airport manager. "People walking and running by the airstrip where we start and turn aircraft must realize they are in a hazardous area. A good rule of thumb to follow is: keep at least 500 feet away from planes in the start and turn areas. In fact, for your own safety, completely avoid exercising near the airstrip area."

Grumman hams take to the field

"CQ Field Day. . .CQ Field Day. This is WA2LQ0." That's the call that will be flashed across the nation and around the world as the Grumman Amateur Radio Club mobilizes for the annual Field Day test. Sponsored by the American Radio Relay League to test the emergency preparedness capabilities of amateur radio clubs in the United States and Canada, the event is called "Field Day" because all participating clubs set up stations under adverse conditions, away from normal facilities.

When disaster strikes. . .

Very often "hams" are the only ones capable of maintaining communications when a disaster strikes. When a devastating earthquake struck Guatemala in February 1976, for the first few days thereafter, hams provided that nation's only link to the outside world by arranging emergency airlifts of food and medical supplies. And, during the recent New York City blackout, when the police department's own communications system became severely overtaxed, hams set up stations in the precinct houses and rode in the patrol cars to provide additional channels of communication. The police were so impressed with the professionalism of the "amateur" operators, that they are now forming a permanent ham radio communications auxiliary.

1978 marks the 19th consecutive year of participation in Field Day by Grumman hams. Beginning at 8 a.m. on Saturday, June 24, at McKay Field, preparations will get underway as the trucks roll into place, the emergency power generator begins to hum, and antennas are stretched across the sky to carry the signal far and wide.

At 2 p.m. the first call will go out, marking the start of Field Day operations. Five stations will be on the air simultaneously and continuously for the next 24 hours, making voice and morse code contacts on many frequency bands to challenge the varying atmospheric conditions that constantly change the range of communications.

Two-way communication

Once the stations are functioning under emergency conditions, the next objective is to exchange two-way contacts with as many stations as possible throughout the U.S., Canada and the world. During last year's effort, the Grumman Amateur Radio Club racked up 1,523 contacts to grab second place in the New York-New Jersey radio district, and 14th place nationally in the five transmitter class.

Despite the serious objectives of Field Day, the event often becomes a picnic or a camping trip, with the whole family taking part. This year's event is open to all Grumman hams (240 at last count) who wish to participate. In addition, all Grummanites are invited to come down to McKay Field to see amateur radio in action.

By 2 p.m. Sunday, at the conclusion of the 24-hour operating period and after the endurance of the operators and their equipment has been pushed to the limits, Grumman hams will know how well they can make the grade when disaster strikes.

For further information, contact club secretary Joe Nehm, Ext. 3715.

Stars and stripes. *On June 14, the Grumman Employees' Band celebrated Flag Day by playing patriotic tunes for Grummanites during lunchtime in Plant 2. (Photo by Marie Trimborn)*

milestones

(Continued from page 9)

Fairlie D. Lockhart, Gen. Commodities (30)
Joyce F. Howell, Gen. Subcontracts (30)
Edward R. Herd, Cust. Supply Rqmts. Mgt. (30)
Charles P. Holton, ILS Supply Ops. Proj. Mgt. (30)
Eddie L. Raiford, Maint. (30)
Don T. Wright, Finance (30)
Stephen Kanas, Audit Liaison (30)
Ralph A. Boyd, ILS Est. (30)
Anthony Coppola, Mech/Fluid Syst. Test (31)
John R. Peronnet, ILS Syst. Tech. Mgt. (35)
Joseph Lovrecich, ILS Digital Engg. (35)
Edward W. Lee, Redundant Struc. (35)
Allan E. Kelvin, Life Sciences (35)
Allan W. Dantowitz, Reliability (35)
Arnold I. Gersch, Weight Optim. & Tech. Devel. (35)
Mary Lynne T. O'Hara, Engg. Mgt. & Staff (35)
James Barton, Insp-Mech. (36)
William G. Todd, PPO E.W. (40)
Frederick P. Marquardt, ILS Prog. Mgt. (40)
Victor F. Kueffer Jr., ILS RF/Controls (40)
Edgar L. Smith, ILS Syst. Des. Engg. (40)
Otto W. Stanaitis, ILS Digital Engg. (40)
Pasquale J. Moro, Crew Syst/Equip. Integ. (40)
Frederick W. Neuscheler, Optic & Display Equip. Des. (40)
Harry Rothman, QC Qual. Engg. (40)
Frederick R. Arlotta, Prog. Qual. Mgt. (40)
Anthony P. Bertolami, Mech. Detail & Finish (43)
Phillip J. Kessler Jr., Avionics Syst. Test (43)
Bernadin J. Doute, Insp. Elect. (43)
Harold Johnson, Config. Data Mgt. (43)
Marvin Lewis, Trans-Ops. (44)
Kenneth S. Maloney, Mntce. Cont. Center (60)
Chester H. Frasher, Logistic Serv. (67)
Robert Marchessault, A/C Syst. Serv. (67)
Jay D. Koehler, Site Mgt. (68)
Jonathan G. Rysanek, Newport Beach (71)
Joseph J. Farina Jr., Cust. Supply Rqmts. Mgt. (81)
Raymond C. Boyd, Support Equip. Serv. (81)
Ronald E. Williams, Support (88)
Alexander Tkacz, Support (88)
Roger W. Tully, Support (88)
Nicholas J. Maroulis, Supp. Equip. Serv. (94)
John F. Griffing, Supp. Equip. Serv. (95)

GRUMMAN plane news

ADDRESS CORRECTION REQUESTED

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